PROTON TRANSPORTERS AND USES IN PLANTS

ABSTRACT

The present invention relates to a transgenic plant which is tolerant to a salt, comprising one or more plant cells transformed with exogenous nucleic acid which alters expression of vacuolar pyrophosphatase in the plant. Also encompassed by the present invention are transgenic progeny and seeds of the transgenic plants described herein. Progeny transgenic plant grown from seed are also described. The present invention also relates to a construct comprising an AVP1 gene operably linked to a chimeric promoter designed to overexpress AVP1 or designed to down regulate endogenous pyrophosphatase. Plant cells (*e.g.*, root cells, stem cell, leaf cells) comprising exogenous nucleic acid which alters expression of vacuolar pyrophosphatase in the plant cell are also the subject of the present invention. Also encompassed by the present invention are methods of making a transgenic plant described herein. Transgenic plants produced by the methods of making a transgenic plant as described herein are also a subject of the present invention. The present invention also relates to a method of bioremediating soil, a method of increasing the yield of a plant, a method of making a plant which is larger than its corresponding wild type plant, and a method of producing a transgenic plant which grows in salt water comprising introducing into one or more cells of a plant nucleic acid which alters expression of vacuolar pyrophosphatase in the plant. The transgenic plants of the present invention can also be used to produce double transgenic plants which are tolerant to a salt.